

|    |      |  |      |
|----|------|--|------|
| Db | 781  | AGAGACGGTGACCGANGATAAGTCTCTCTCCAGCACCCGCGCACTCTTCTACT              | 840  |
| Qy | 978  | ACCCGGGCTGAAGGCCCTTGCTCCCATCGCCAGGGTGACACTGGTGCCTGCGACAGA          | 1037 |
| Db | 841  | ACCCGGGCTGAAGGCCCTTGCTCCCATCGCCAGGGTGACACTGGTGCCTGCGACAGA          | 900  |
| Qy | 1038 | GCCCCAGGGCCTTCATCCCTCCGCGCCCACTGCTGCCAGCAGGGACAATGAGATGTAG         | 1097 |
| Db | 901  | GCCCCAGGGCCTTCATCCCTCCGCGCCCACTGCTGCCAGCAGGGACAATGAGATGTAG         | 960  |
| Qy | 1098 | ACAGCGCTCAGTTCACAGAAACCGCGCTGGACTGCGAGGTCTCCCTGTGCTGCTGGG          | 1157 |
| Db | 961  | ACAGCGCTCAGTTCACAGAAACCGCGCTGGACTGCGAGGTCTCCCTGTGCTGCTGGG          | 1020 |
| Qy | 1158 | GACTGTGCGGAGGCCACTGTGGGAGGCTGGGACCAAGAGCAGGACTCGGTACGTCGGG         | 1211 |
| Db | 1021 | GACTGTGCGGAGGCCACTGTGGGAGGCTGGGAGCCCGGAGCAACAGAGCAGACTCGCTACGTCGGG | 1080 |
| Qy | 1218 | TCAGACCCGCCAACACGGGAGCCCTCGCCCGAGCTCGAAGAGAGGCTGAGTGGGTCC          | 1277 |
| Db | 1081 | TCAGACCCGCCAACACGGGAGCCCTCGCCCGAGCTCGAAGAGAGGCTGAGTGGGTCC          | 1140 |
| Qy | 1278 | CTGATAACTGCGCTTAAGACCAAGAGCCCGAGCCCTGGGGCCCCCGAGGCATATGGG          | 1337 |
| Db | 1141 | CTGATAACTGCGCTTAAGACCAAGAGCCCGAGCCCTGGGGCCCCCGAGGCATATGGG          | 1200 |
| Qy | 1338 | TGTCGGGGCTCCTGTGCAGGCTCATGTGTGAGGGGCGGAGGCGACAGGGGGTTTCGG          | 1397 |
| Db | 1201 | TGTCGGGGCTCCTGTGCAGGCTCATGTGTGAGGGGCGGAGGCGACAGGGGGTTTCGG          | 1260 |
| Qy | 1398 | CTGCTCCTGACCGCGGTGAGGGCGGCGGACCATCTGTGACTCAAGGGGCCCTCTGGTG         | 1457 |
| Db | 1261 | CTGCTCCTGACCGCGGTGAGGGCGGCGGACCATCTGTGACTCAAGGGGCCCTCTGGTG         | 1320 |
| Qy | 1458 | CGGCGACGGGCATTGGGAACAGCCTCTCTCTTTCCCAACCTTGCTTCTTAGGGGCCCCC        | 1517 |
| Db | 1321 | CGGCGACGGGCATTGGGAACAGCCTCTCTCTTTCCCAACCTTGCTTCTTAGGGGCCCCC        | 1380 |
| Qy | 1518 | GTGTCGGCTGCTCTCAGCCTCCCTCTCTGAGGATAAAGTTCATCCCCAAGGCTCCAG          | 1577 |
| Db | 1381 | GTGTCGGCTGCTCTCAGCCTCCCTCTCTGAGGATAAAGTTCATCCCCAAGGCTCCAG          | 1440 |
| Qy | 1578 | CTACTCTAAATATTGTCTCTTATAAGTTATTGTGCTCCAGGAGATTGTCTTCATCGT          | 1637 |
| Db | 1441 | CTACTCTAAATATTGTCTCTTATAAGTTATTGTGCTCCAGGAGATTGTCTTCATCGT          | 1500 |
| Qy | 1638 | CCAGGGGCTGGCTCCCAAGTGGTTGCAGATACCTCAGACCTGGTGTCTAGGCTGTGCT         | 1697 |
| Db | 1501 | CCAGGGGCTGGCTCCCAAGTGGTTGCAGATACCTCAGACCTGGTGTCTAGGCTGTGCT         | 1560 |
| Qy | 1698 | GAGCCACATCTCCGAGGGCGATCCAGCGGGGGCCACTTGAGAAAGTGAATAAATGGGG         | 1757 |
| Db | 1561 | GAGCCACATCTCCGAGGGCGATCCAGCGGGGGCCACTTGAGAAAGTGAATAAATGGGG         | 1620 |
| Qy | 1758 | CGGTTTCGGAAGCGTCAGTGTTTCCATGTTATGGATCTCTCTGCGTTTGATAAAGACTA        | 1817 |
| Db | 1621 | CGGTTTCGGAAGCGTCAGTGTTTCCATGTTATGGATCTCTCTGCGTTTGATAAAGACTA        | 1680 |
| Qy | 1818 | TCCTCTTGTCTCAAAAAAAAAAAAA  | 1840 |
| Db | 1681 | TCCTCTTGTCTCAAAAAAAAAAAAA  | 1703 |

**RESULT 13**

AAH34981

ID AAH34981 standard; cDNA: 1848 BP.

XX  
XX  
XXXXX

AC  
AAH

AC YY AAH.5

XX DE 03-0

DT  
03-5

1

Human colon cancer antigen encoding cDNA SEQ ID NO: 2063.

Human; colon cancer; colon cancer antigen; diagnosis; detection; colorectal carcinoma; ss.

*Homo sapiens*.

W0200122920-A2

05-APP-2001

1  
 2  
 3  
 4  
 5  
 6  
 7  
 8  
 9  
 10  
 11  
 12  
 13  
 14  
 15  
 16  
 17  
 18  
 19  
 20  
 21  
 22  
 23  
 24  
 25  
 26  
 27  
 28  
 29  
 30  
 31  
 32  
 33  
 34  
 35  
 36  
 37  
 38  
 39  
 40  
 41  
 42  
 43  
 44  
 45  
 46  
 47  
 48  
 49  
 50  
 51  
 52  
 53  
 54  
 55  
 56  
 57  
 58  
 59  
 60  
 61  
 62  
 63  
 64  
 65  
 66  
 67  
 68  
 69  
 70  
 71  
 72  
 73  
 74  
 75  
 76  
 77  
 78  
 79  
 80  
 81  
 82  
 83  
 84  
 85  
 86  
 87  
 88  
 89  
 90  
 91  
 92  
 93  
 94  
 95  
 96  
 97  
 98  
 99  
 100  
 101  
 102  
 103  
 104  
 105  
 106  
 107  
 108  
 109  
 110  
 111  
 112  
 113  
 114  
 115  
 116  
 117  
 118  
 119  
 120  
 121  
 122  
 123  
 124  
 125  
 126  
 127  
 128  
 129  
 130  
 131  
 132  
 133  
 134  
 135  
 136  
 137  
 138  
 139  
 140  
 141  
 142  
 143  
 144  
 145  
 146  
 147  
 148  
 149  
 150  
 151  
 152  
 153  
 154  
 155  
 156  
 157  
 158  
 159  
 160  
 161  
 162  
 163  
 164  
 165  
 166  
 167  
 168  
 169  
 170  
 171  
 172  
 173  
 174  
 175  
 176  
 177  
 178  
 179  
 180  
 181  
 182  
 183  
 184  
 185  
 186  
 187  
 188  
 189  
 190  
 191  
 192  
 193  
 194  
 195  
 196  
 197  
 198  
 199  
 200  
 201  
 202  
 203  
 204  
 205  
 206  
 207  
 208  
 209  
 210  
 211  
 212  
 213  
 214  
 215  
 216  
 217  
 218  
 219  
 220  
 221  
 222  
 223  
 224  
 225  
 226  
 227  
 228  
 229  
 230  
 231  
 232  
 233  
 234  
 235  
 236  
 237  
 238  
 239  
 240  
 241  
 242  
 243  
 244  
 245  
 246  
 247  
 248  
 249  
 250  
 251  
 252  
 253  
 254  
 255  
 256  
 257  
 258  
 259  
 260  
 261  
 262  
 263  
 264  
 265  
 266  
 267  
 268  
 269  
 270  
 271  
 272  
 273  
 274  
 275  
 276  
 277  
 278  
 279  
 280  
 281  
 282  
 283  
 284  
 285  
 286  
 287  
 288  
 289  
 290  
 291  
 292  
 293  
 294  
 295  
 296  
 297  
 298  
 299  
 300  
 301  
 302  
 303  
 304  
 305  
 306  
 307  
 308  
 309  
 310  
 311  
 312  
 313  
 314  
 315  
 316  
 317  
 318  
 319  
 320  
 321  
 322  
 323  
 324  
 325  
 326  
 327  
 328  
 329  
 330  
 331  
 332  
 333  
 334  
 335  
 336  
 337  
 338  
 339  
 340  
 341  
 342  
 343  
 344  
 345  
 346  
 347  
 348  
 349  
 350  
 351  
 352  
 353  
 354  
 355  
 356  
 357  
 358  
 359  
 360  
 361  
 362  
 363  
 364  
 365  
 366  
 367  
 368  
 369  
 370  
 371  
 372  
 373  
 374  
 375  
 376  
 377  
 378  
 379  
 380  
 381  
 382  
 383  
 384  
 385  
 386  
 387  
 388  
 389  
 390  
 391  
 392  
 393  
 394  
 395  
 396  
 397  
 398  
 399  
 400  
 401  
 402  
 403  
 404  
 405  
 406  
 407  
 408  
 409  
 410  
 411  
 412  
 413  
 414  
 415  
 416  
 417  
 418  
 419  
 420  
 421  
 422  
 423  
 424  
 425  
 426  
 427  
 428  
 429  
 430  
 431  
 432  
 433  
 434  
 435  
 436  
 437  
 438  
 439  
 440  
 441  
 442  
 443  
 444  
 445  
 446  
 447  
 448  
 449  
 450  
 451  
 452  
 453  
 454  
 455  
 456  
 457  
 458  
 459  
 460  
 461  
 462  
 463  
 464  
 465  
 466  
 467  
 468  
 469  
 470  
 471  
 472  
 473  
 474  
 475  
 476  
 477  
 478  
 479  
 480  
 481  
 482  
 483  
 484  
 485  
 486  
 487  
 488  
 489  
 490  
 491  
 492  
 493  
 494  
 495  
 496  
 497  
 498  
 499  
 500  
 501  
 502  
 503  
 504  
 505  
 506  
 507  
 508  
 509  
 510  
 511  
 512  
 513  
 514  
 515  
 516  
 517  
 518  
 519  
 520  
 521  
 522  
 523  
 524  
 525

03-NOV-1999; 99US-0163280.

(HUMA-) HUMAN GENOME SCI INC.

| Author   | Year | Country   | Sample Size | Study Design | Findings  |
|----------|------|-----------|-------------|--------------|---|
| Ruben SM | 1998 | Barash SC | 1,000       | Case-control | Increased risk of infection in patients with a history of recent travel to endemic areas. |
| Rosen CA | 1999 | Ritose CF | 2,000       | Cohort       | Increased risk of infection in patients with a history of recent travel to endemic areas. |

WDT: 2001-03-23/24:

WPI; 2001-235357/  
D-DCDD: 13075576

Nucleic acids encoding 4277 human colon cancer-associated polypeptides, useful for preventing, diagnosing and/or treating colorectal cancers:

1  
 2  
 3  
 4  
 5  
 6  
 7  
 8  
 9  
 10  
 11  
 12  
 13  
 14  
 15  
 16  
 17  
 18  
 19  
 20  
 21  
 22  
 23  
 24  
 25  
 26  
 27  
 28  
 29  
 30  
 31  
 32  
 33  
 34  
 35  
 36  
 37  
 38  
 39  
 40  
 41  
 42  
 43  
 44  
 45  
 46  
 47  
 48  
 49  
 50  
 51  
 52  
 53  
 54  
 55  
 56  
 57  
 58  
 59  
 60  
 61  
 62  
 63  
 64  
 65  
 66  
 67  
 68  
 69  
 70  
 71  
 72  
 73  
 74  
 75  
 76  
 77  
 78  
 79  
 80  
 81  
 82  
 83  
 84  
 85  
 86  
 87  
 88  
 89  
 90  
 91  
 92  
 93  
 94  
 95  
 96  
 97  
 98  
 99  
 100  
 101  
 102  
 103  
 104  
 105  
 106  
 107  
 108  
 109  
 110  
 111  
 112  
 113  
 114  
 115  
 116  
 117  
 118  
 119  
 120  
 121  
 122  
 123  
 124  
 125  
 126  
 127  
 128  
 129  
 130  
 131  
 132  
 133  
 134  
 135  
 136  
 137  
 138  
 139  
 140  
 141  
 142  
 143  
 144  
 145  
 146  
 147  
 148  
 149  
 150  
 151  
 152  
 153  
 154  
 155  
 156  
 157  
 158  
 159  
 160  
 161  
 162  
 163  
 164  
 165  
 166  
 167  
 168  
 169  
 170  
 171  
 172  
 173  
 174  
 175  
 176  
 177  
 178  
 179  
 180  
 181  
 182  
 183  
 184  
 185  
 186  
 187  
 188  
 189  
 190  
 191  
 192  
 193  
 194  
 195  
 196  
 197  
 198  
 199  
 200  
 201  
 202  
 203  
 204  
 205  
 206  
 207  
 208  
 209  
 210  
 211  
 212  
 213  
 214  
 215  
 216  
 217  
 218  
 219  
 220  
 221  
 222  
 223  
 224  
 225  
 226  
 227  
 228  
 229  
 230  
 231  
 232  
 233  
 234  
 235  
 236  
 237  
 238  
 239  
 240  
 241  
 242  
 243  
 244  
 245  
 246  
 247  
 248  
 249  
 250  
 251  
 252  
 253  
 254  
 255  
 256  
 257  
 258  
 259  
 260  
 261  
 262  
 263  
 264  
 265  
 266  
 267  
 268  
 269  
 270  
 271  
 272  
 273  
 274  
 275  
 276  
 277  
 278  
 279  
 280  
 281  
 282  
 283  
 284  
 285  
 286  
 287  
 288  
 289  
 290  
 291  
 292  
 293  
 294  
 295  
 296  
 297  
 298  
 299  
 300  
 301  
 302  
 303  
 304  
 305  
 306  
 307  
 308  
 309  
 310  
 311  
 312  
 313  
 314  
 315  
 316  
 317  
 318  
 319  
 320  
 321  
 322  
 323  
 324  
 325  
 326  
 327  
 328  
 329  
 330  
 331  
 332  
 333  
 334  
 335  
 336  
 337  
 338  
 339  
 340  
 341  
 342  
 343  
 344  
 345  
 346  
 347  
 348  
 349  
 350  
 351  
 352  
 353  
 354  
 355  
 356  
 357  
 358  
 359  
 360  
 361  
 362  
 363  
 364  
 365  
 366  
 367  
 368  
 369  
 370  
 371  
 372  
 373  
 374  
 375  
 376  
 377  
 378  
 379  
 380  
 381  
 382  
 383  
 384  
 385  
 386  
 387  
 388  
 389  
 390  
 391  
 392  
 393  
 394  
 395  
 396  
 397  
 398  
 399  
 400  
 401  
 402  
 403  
 404  
 405  
 406  
 407  
 408  
 409  
 410  
 411  
 412  
 413  
 414  
 415  
 416  
 417  
 418  
 419  
 420  
 421  
 422  
 423  
 424  
 425  
 426  
 427  
 428  
 429  
 430  
 431  
 432  
 433  
 434  
 435  
 436  
 437  
 438  
 439  
 440  
 441  
 442  
 443  
 444  
 445  
 446  
 447  
 448  
 449  
 450  
 451  
 452  
 453  
 454  
 455  
 456  
 457  
 458  
 459  
 460  
 461  
 462  
 463  
 464  
 465  
 466  
 467  
 468  
 469  
 470  
 471  
 472  
 473  
 474  
 475  
 476  
 477  
 478  
 479  
 480  
 481  
 482  
 483  
 484  
 485  
 486  
 487  
 488  
 489  
 490  
 491  
 492  
 493  
 494  
 495  
 496  
 497  
 498  
 499  
 500  
 501  
 502  
 503  
 504  
 505  
 506  
 507  
 508  
 509  
 510  
 511  
 512  
 513  
 514  
 515  
 516  
 517  
 518  
 519  
 520  
 521  
 522  
 523  
 524  
 525

AAH32943 to AAH37195 and AAG73514 to AAG77788 represent human colon cancer-associated nucleic acid molecules (N) and proteins (P), where the proteins are collectively known as colon cancer antigens. The colon cancer antigens have cytostatic activity and can be used in gene therapy and vaccine production. N and P may be used in the prevention, diagnosis and treatment of diseases associated with inappropriate P expression. For example, N and P may be used to treat disorders associated with decreased expression by rectifying mutations or deletions in a patient's genome that affect the activity of P by expressing inactive proteins or to supplement the patients own production of P. Additionally, N may be used to produce the colon cancer-associated Ps, by inserting the nucleic acids into a host cell and culturing the cell to express the proteins. N and P can be used in the prevention, diagnosis and treatment of colorectal carcinomas and cancers. AAH37196 to AAH37204 and AAB77789 represent sequences used in the exemplification of the present invention.

N.B. Pages 666 to 682 and page 7053 of the sequence listing were missing at time of publication, meaning no sequences are present for SEQ ID NO:1027 to 1052, 7921 and 7922.

Sequence 1848 BP: 324 A: 601 C: 578 G: 340 T: 5 other:

```

Very Match      91.3%; Score 1680.8; DB 22; Length 1848;
1st Local Similarity 99.8%; Pred. No. 0;
Matches 1679; Conservative 3; Mismatches 1; Indels 0;

```

158 AGGCCGTGCAGCATCGAAGACAGGAGGA ACTGGAGCCTCATTCGCCGCCGCCGCCGCC

122

[illegible]

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65  
66  
67  
68  
69  
70  
71  
72  
73  
74  
75  
76  
77  
78  
79  
80  
81  
82  
83  
84  
85  
86  
87  
88  
89  
90  
91  
92  
93  
94  
95  
96  
97  
98  
99  
100  
101  
102  
103  
104  
105  
106  
107  
108  
109  
110  
111  
112  
113  
114  
115  
116  
117  
118  
119  
120  
121  
122  
123  
124  
125  
126  
127  
128  
129  
130  
131  
132  
133  
134  
135  
136  
137  
138  
139  
140  
141  
142  
143  
144  
145  
146  
147  
148  
149  
150  
151  
152  
153  
154  
155  
156  
157  
158  
159  
160  
161  
162  
163  
164  
165  
166  
167  
168  
169  
170  
171  
172  
173  
174  
175  
176  
177  
178  
179  
180  
181  
182  
183  
184  
185  
186  
187  
188  
189  
190  
191  
192  
193  
194  
195  
196  
197  
198  
199  
200  
201  
202  
203  
204  
205  
206  
207  
208  
209  
210  
211  
212  
213  
214  
215  
216  
217  
218  
219  
220  
221  
222  
223  
224  
225  
226  
227  
228  
229  
230  
231  
232  
233  
234  
235  
236  
237  
238  
239  
240  
241  
242  
243  
244  
245  
246  
247  
248  
249  
250  
251  
252  
253  
254  
255  
256  
257  
258  
259  
260  
261  
262  
263  
264  
265  
266  
267  
268  
269  
270  
271  
272  
273  
274  
275  
276  
277  
278  
279  
280  
281  
282  
283  
284  
285  
286  
287  
288  
289  
290  
291  
292  
293  
294  
295  
296  
297  
298  
299  
300  
301  
302  
303  
304  
305  
306  
307  
308  
309  
310  
311  
312  
313  
314  
315  
316  
317  
318  
319  
320  
321  
322  
323  
324  
325  
326  
327  
328  
329  
330  
331  
332  
333  
334  
335  
336  
337  
338  
339  
340  
341  
342  
343  
344  
345  
346  
347  
348  
349  
350  
351  
352  
353  
354  
355  
356  
357  
358  
359  
360  
361  
362  
363  
364  
365  
366  
367  
368  
369  
370  
371  
372  
373  
374  
375  
376  
377  
378  
379  
380  
381  
382  
383  
384  
385  
386  
387  
388  
389  
390  
391  
392  
393  
394  
395  
396  
397  
398  
399  
400  
401  
402  
403  
404  
405  
406  
407  
408  
409  
410  
411  
412  
413  
414  
415  
416  
417  
418  
419  
420  
421  
422  
423  
424  
425  
426  
427  
428  
429  
430  
431  
432  
433  
434  
435  
436  
437  
438  
439  
440  
441  
442  
443  
444  
445  
446  
447  
448  
449  
450  
451  
452  
453  
454  
455  
456  
457  
458  
459  
460  
461  
462  
463  
464  
465  
466  
467  
468  
469  
470  
471  
472  
473  
474  
475  
476  
477  
478  
479  
480  
481  
482  
483  
484  
485  
486  
487  
488  
489  
490  
491  
492  
493  
494  
495  
496  
497  
498  
499  
500  
501  
502  
503  
504  
505  
506  
507  
508  
509  
510  
511  
512  
513  
514  
515  
516  
517  
518  
519  
520  
521  
522  
523  
524  
525  
526  
527  
528  
529  
530  
531  
532  
533  
534  
535  
536  
537  
538  
539  
540  
541  
542  
543  
544  
545  
546  
547  
548  
549  
550  
551  
552  
553  
554  
555  
556  
557  
558  
559  
560  
561  
562  
563  
564  
565  
566  
567  
568  
569  
570  
571  
572  
573  
574  
575  
576  
577  
578  
579  
580  
581  
582  
583  
584  
585  
586  
587  
588  
589  
590  
591  
592  
593  
594  
595  
596  
597  
598  
599  
600  
601  
602  
603  
604  
605  
606  
607  
608  
609  
610  
611  
612  
613  
614  
615  
616  
617  
618  
619  
620  
621  
622  
623  
624  
625  
626  
627  
628  
629  
630  
631  
632  
633  
634  
635  
636  
637  
638  
639  
640  
641  
642  
643  
644  
645  
646  
647  
648  
649  
650  
651  
652  
653  
654  
655  
656  
657  
658  
659  
660  
661  
662  
663  
664  
665  
666  
667  
668  
669  
670  
671  
672  
673  
674  
675  
676  
677  
678  
679  
680  
681  
682  
683  
684  
685  
686  
687  
688  
689  
690  
691  
692  
693  
694  
695  
696  
697  
698  
699  
700  
701  
702  
703  
704  
705  
706  
707  
708  
709  
710  
711  
712  
713  
714  
715  
716  
717  
718  
719  
720  
721  
722  
723  
724  
725  
726  
727  
728  
729  
730  
731  
732  
733  
734  
735  
736  
737  
738  
739  
740  
741  
742  
743  
744  
745  
746  
747  
748  
749  
750  
751  
752  
753  
754  
755  
756  
757  
758  
759  
760  
761  
762  
763  
764  
765  
766  
767  
768  
769  
770  
771  
772  
773  
774  
775  
776  
777  
778  
779  
780  
781  
782  
783  
784  
785  
786  
787  
788  
789  
790  
791  
792  
793  
794  
795  
796  
797  
798  
799  
800  
801  
802  
803  
804  
805  
806  
807  
808  
809  
810  
811  
812  
813  
814  
815  
816  
817  
818  
819  
820  
821  
822  
823  
824  
825  
826  
827  
828  
829  
830  
831  
832  
833  
834  
835  
836  
837  
838  
839  
840  
84

---

[illegible]

233 TCCCGCTGCTCC TGCCGGGTGATGGAAACCCAGCCCGGCCCTGGGCAAGGCC 312

338 CTCTGGGCTCTCCTCCTGGCCACTCTCGGGCCGCCAGCCTCTTGGGGAGAGTCC 397

313 CTCTGGGCTCTCCTCCTGGCCACTCTCGGCGCGCCAGCCTCTTGGGGAGAGTCC 372

398 ATCTGTTCGCGCAGCCCCGGCCAAATACAGCATCACCTTCACGGCAAGTGGAGCCAG 457

[illegible]



| Result No. | Score  | Query Match | Length | DB ID | Description       |
|------------|--------|-------------|--------|-------|-------------------|
| 1          | 1692.4 | 92.0        | 1779   | 4     | US-09-371-696-1   |
| 2          | 1100.2 | 59.8        | 1105   | 2     | US-08-799-173A-1  |
| 3          | 343.8  | 18.7        | 400    | 1     | US-08-644-326-1   |
| 4          | 339    | 18.4        | 400    | 4     | US-09-022-238-1   |
| 5          | 304.8  | 16.6        | 506    | 2     | US-08-799-173A-15 |
| 6          | 204.2  | 11.1        | 316    | 2     | US-08-799-173A-16 |
| 7          | 204.2  | 11.1        | 316    | 2     | US-08-799-173A-17 |
| 8          | 71.6   | 3.9         | 4029   | 1     | US-07-863-021B-9  |
| 9          | 71.6   | 3.9         | 4029   | 1     | US-08-313-288B-9  |
| 10         | 71.6   | 3.9         | 4029   | 5     | PCR-US93-03164-9  |
| 11         | 62.2   | 3.4         | 3226   | 1     | US-07-862-021B-11 |
| 12         | 62.2   | 3.4         | 3226   | 1     | US-08-313-288B-11 |
| 13         | 62.2   | 3.4         | 3226   | 5     | PCR-US93-03164-11 |
| 14         | 57.6   | 3.1         | 1155   | 4     | US-08-818-112-12  |
| 15         | 57.6   | 3.1         | 1155   | 4     | US-08-818-111-12  |
| 16         | 57.6   | 3.1         | 1155   | 4     | US-09-056-556-12  |
| 17         | 57.2   | 3.1         | 1816   | 1     | US-07-862-021B-13 |
| 18         | 57.2   | 3.1         | 1816   | 1     | US-08-313-288B-13 |
| 19         | 57.2   | 3.1         | 1816   | 5     | PCR-US93-03164-13 |
| 20         | 55.4   | 3.0         | 1105   | 2     | US-08-799-173A-1  |
| 21         | 55     | 3.0         | 30001  | 1     | US-08-125-468-1   |
| 22         | 55     | 3.0         | 30001  | 2     | US-08-474-933-1   |
| 23         | 54.4   | 3.0         | 933    | 4     | US-09-105-390-43  |
| 24         | 54.4   | 3.0         | 1008   | 4     | US-09-105-390-59  |
| 25         | 54.4   | 3.0         | 2810   | 4     | US-09-105-390-6   |
| 26         | 52.4   | 2.8         | 1779   | 4     | US-09-371-696-1   |
| 27         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 28         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 29         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 30         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 31         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 32         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 33         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 34         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 35         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 36         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 37         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 38         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 39         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 40         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 41         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 42         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 43         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 44         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 45         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 46         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 47         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 48         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 49         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 50         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 51         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 52         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 53         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 54         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 55         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 56         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 57         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 58         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 59         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 60         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 61         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 62         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 63         | 51.8   | 2.8         | 8625   | 4     | US-08-980-832-1   |
| 64         | 51.8   | 2.8         | 8625   | 4     | US-08-980         |

|                            |       |               |                |                   |
|----------------------------|-------|---------------|----------------|-------------------|
| Query Match                | 92.0% | Score 1692.4; | DB 4;          | Length 1779;      |
| Best Local Similarity      | 98.4% | Pred. No. 0;  |                |                   |
| Matches 1751: Conservative |       | 0;            | Mismatches 23; | Indels 6; Gaps 4; |

|    |     |   |     |
|----|-----|---|-----|
| Qy | 123 | TTCCTCCACGCTCTATCTGGCTCTCGCTGGAGGCCAGGCGCTGCAGCATCTGAAGACAGGA | 182 |
|    |     |   |     |
|    |     |   |     |
|    |     |   |     |
| Db | 60  | TTCCTCCACGCTCTATCTGGCTCTCGCTGGAGGCCAGGCGCTGCCAGATCGAAGACAGGA  | 119 |
|    |     |   |     |
| Qy | 183 | GGAACTCGAGCGCTCATTTGGCGCGCGGGCGCGCGCTCGGCTTAAATAGGAGCTCCG     | 242 |
|    |     |   |     |
| Db | 120 | GGAACCTCGAGCGCTCATTTGGCGCGCGGGCGCGCGCTCGGCTTAAATAGGAGCTCCG    | 179 |
|    |     |   |     |
| Qy | 243 | GGCTCTGGCTGGACCGACCGTTCGGCGCGCGCTCCGCTGCTCTCTGCCGGGTGATGG     | 302 |
|    |     |   |     |
| Db | 180 | GGCTCTGGCTGGACCGACCGTTCGGCGCGCGCTCCGCTGCTCTCTGCCGGGTGATGG     | 239 |
|    |     |   |     |

